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ORRICK, HERRINGTON & SUTCLIFFE, LLP
4 PARK PLAZA
SUITE 1600
IRVINE, CA 92614-2558

EXAMINER

BARBER, THERESE

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 07/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,629

Applicant(s)

HSU ET AL.

Examiner

Therese Barber

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-38 and 44-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-20, 23, 24, 26-28, 30-38, 44 and 46-50 is/are rejected.
- 7) ☒ Claim(s) 21, 22, 25, 29, 45 and 51 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 16-38 and 44-51 in Paper No. 6 is acknowledged. The applicant has cancelled claims 1-15 and 39-43.

Claim Rejections - 35 USC § 112

2. Claims 30-33, 34-38 and 47-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 30-33 and 34-38, the claim language involving the "third structure" remains unclear to the examiner after reading the specification. The examiner cannot ascertain if the applicant is referring to the third light guiding waveguide (specification, page 11, lines 2-7) or if the applicant is referring to the thermal compensation flexures, which connect the suspended (movable) structure to the fixed structure (specification, page 12, lines 12-17). Both the waveguide and the thermal compensation flexure can be viewed as the third structure.

Regarding claim 47-49, all of which depend on claim 45, the limitation of claim 47 states "wherein the thermal distortion offset structure is made of the same material as the waveguide" and the limitations of claims 48 and 49 state "wherein the thermal distortion offset structure includes a second waveguide" and "wherein the thermal distortion offset structure is a second waveguide whose configuration differs from the configuration of the waveguide". From the wording of the claim limitation, it remains unclear to the examiner if the applicant is claiming

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that the thermal distortion structure contains both the first and second waveguide or if the thermal distortion structure contains only the second waveguide. In addition, it is unclear how the thermal distortion structure can be materially similar to the first waveguide but materially different from the second waveguide if both waveguides are located on the same thermal distortion offset structure.

Claim Objections

3. Claims 18-19, 26-28, 31-34, 35-37, 45, and 47- 51 are objected to because of the following informalities:

Regarding claims 18-19, 26-28, 31-34, 35-37, 45, 47-49 and 51, the term “waveguide” is objected because it is unclear to the examiner if the applicant is referring to “a planar waveguide” or to “optical fibers, which are also called dielectric waveguides”.

Claim 31 recites the limitation "the first light guiding" in claim 30. There is insufficient antecedent basis for this limitation in the claim 30. It is noted that the “first light structure” appears in claim 23.

Claim 33 recites the limitation "the first light guiding" in claim 31. There is insufficient antecedent basis for this limitation in the claim 31. It is noted that the “first light structure” appears in claim 23.

Claim 46 recites the limitation "the first and second surfaces are the top and bottom surfaces of the suspended structure" in claim 45. There is insufficient antecedent basis for this limitation in the claim 45. It is noted that the “first and second structures” appears in claim 44.

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Claim 50 recites the limitation “ wherein the first and second structures ... are orthogonal to the top surface of the suspended structure” in claim 45. There is insufficient antecedent basic for this limitation in claim 45. It noted that “the first and second structures” appear in claim 44.

Appropriate correction is required.

4. Claims 30, 45, 47, and 51 are objected to because of the following informalities:

Regarding claim 30, lines 3 and 4, it is suggested that the phrase “light guiding” is inserted after the term “third”.

Regarding claim 45, line 2, it is suggested that the term “first” is inserted the term before “waveguide”.

Regarding claim 47, line 2, it is suggested that the phrase “said first” or “the first” is inserted the term before “waveguide”.

Regarding claim 51, line 2, it is suggested that the phrase “said first” or “the first” is inserted before the term “waveguide”.

Appropriate correction is suggested.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 16-20, 23-24, and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishiyama et al. (USPN 6,169,826 B1).

7. Regarding claims 16-20, 23-24, and 26-28, Nishiyama discloses an optical device comprised of a fixed structure (32); a movable structure (30) that is disposed adjacent to the fixed structure (fig. 1), wherein the movable structure moves relative to the fixed structure (col. 5, line 62 to col. 6, line 15); a first light guiding structure that is mounted on the fixed structure (21a-21d), wherein the first light guiding structure is comprised of a different material (col. 5, lines 49-54) than the fixed structure (col. 4, line 67 to col. 5, line 8); a second light guiding structure (20a, 20b) mounted on the movable structure (col. 5, lines 9-11), wherein the second light structure (col. 5, lines 9-13) is comprised of a different material than the movable structure (col. 4, line 67 to col. 5, line 8); wherein the first and second light guiding structures have ends that aligned to propagate an optical signal between the first and second light guide (col. 6, lines 2-17); the fixed structure having a base (col. 5, line 35 and lines 42-43), wherein when the optical device is subject to thermal distortion (col. 7, lines 1-36), the ends of the first and second light guiding structures maintain alignment between each other (col. 5, lines 35-49; col. 5, line 62 to col. 6, 24); and a slot in the fixed or movable structure, wherein the slot helps to maintain alignment of the ends of the first and second light guiding structures (col. 5, lines 9-11 and col. 5, lines 49-51).

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8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. Claims 44, 46, and 50 are rejected under 35 U.S.C. 102(a) as being anticipated by Wu et al. (USPN 6,526,198 B1).

10. Regarding claims 44, 46, and 50, Wu discloses an optical device comprised of a suspended structure (11e) that is adapted to move relative to the substrate (17), the first and second surfaces of the suspended structures are on opposite sides (fig. 10a); a light guiding structure (12) disposed on the first surface of the suspended structure (11e); and a thermal distortion offset structure (172) formed on the second surface of the suspended structure (fig. 10a), wherein the thermal distortion structure is configured to counteract a thermal distortion to the first surface of the suspended structure (col. 18, lines 59-62); wherein the first and second surfaces are the top and bottom surfaces of the suspended structure (fig. 10a); and wherein the first and second surfaces are side structures that are orthogonal to each other (fig. 10a).

Allowable Subject Matter

11. Claims 21-22, 25, 29, 45 and 51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Regarding claims 21-22, the prior art of records fails to suggest or to reasonably disclose an optical device having two fixed structures wherein the first and third optical waveguides are

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mounted; a movable structure, located between the two fixed structures, wherein the second optical waveguide is mounted; and wherein the first, second, and third waveguides are comprised of optical materials that are different from the materials that comprised the two fixed and single structures, as set forth in the claimed combination.

13. Regarding claims 25 and 29, the prior art of record fails to suggest or to reasonably disclose an optical device having a fixed and movable structures, wherein first and second light guiding structures mounted to the fixed and movable structures, whereby the ends of the two light guiding structures will stay align to each other during thermal distortion due to the presence of a third extraneous waveguide, mounted to the fixed or movable structure, which helps to align the ends the two light guiding structures, as set forth in the claimed combination.

14. Regarding claims 45 and 51, the prior art of record fails to suggest or to reasonably disclose an optical device having a waveguide disposed on the first surface of the suspended structure that moves relative to the substrate, wherein a top layer is disposed on the suspended structure, in order, to cover the waveguide, as set forth in the claimed combination.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Therese Barber whose telephone number is (703) 306-0205. The examiner can normally be reached on Monday to Friday from 8:30 a.m. to 6:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (703) 308-4858. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-4857 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

tb 
July 14, 2003


EDWARD J. GLICK
Supervisor EXAMINER
TECHNOLOGY CENTER 2800